Cough and Hemoptysis

Lisa K. Moores
PCCMS

Outline

- **Anatomic Diagnostic Protocol**
- **Guidelines for evaluation of chronic cough**
- **Review the three most common causes of chronic cough**
- **Pitfalls in management**

Epidemiology

- **Prevalence in US from 14-23%**
- **Fifth most common complaint seen by outpatient physicians**
- **$600 million per year spent on prescription and OTC antitussives in the US alone**

Definition

- **Three vs eight weeks**

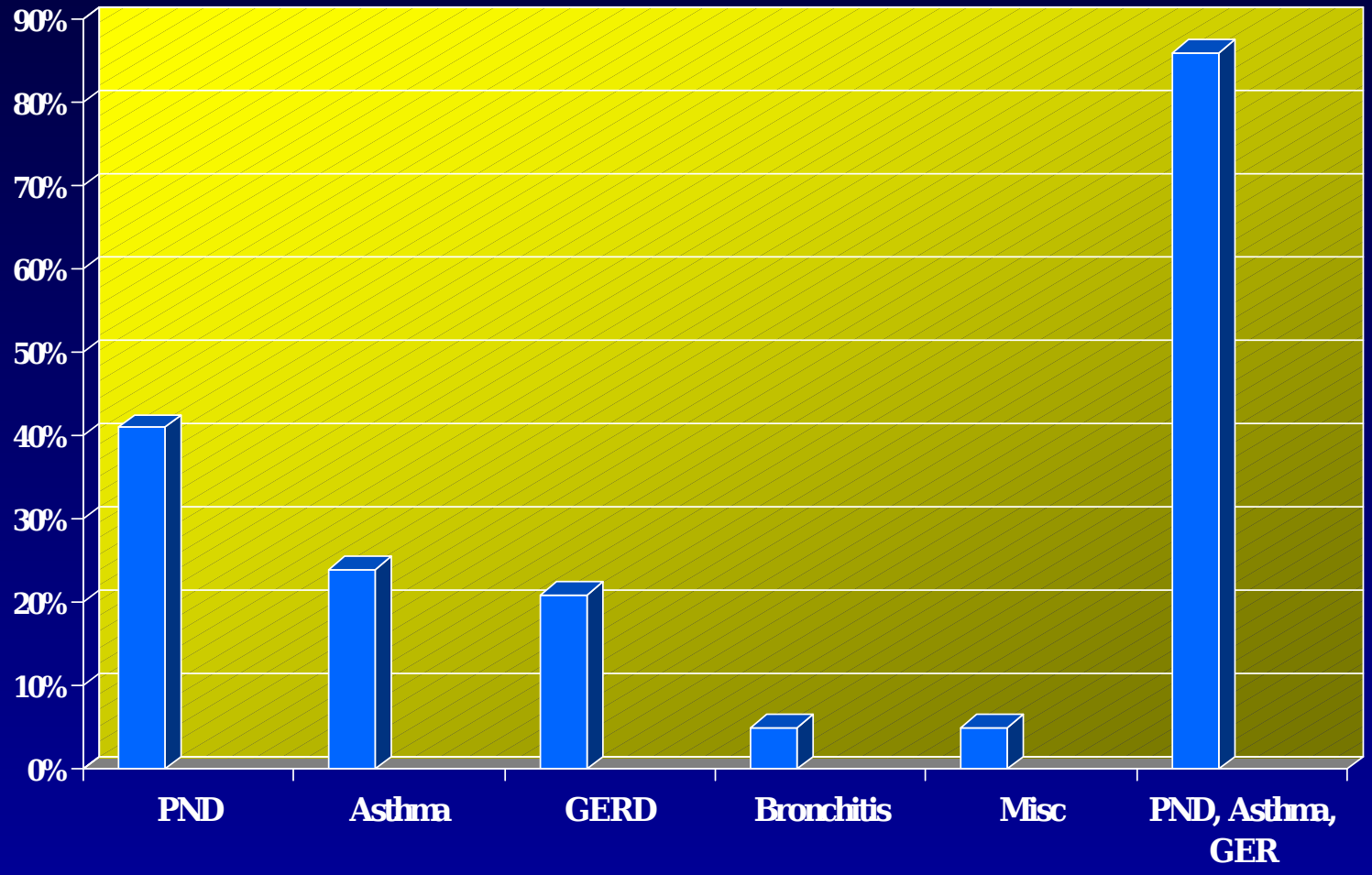
Well Established Causes

- **Obstructive airways disease**
- **Restrictive lung disease**
- **Infection**
- **Cardiac (CHF, pericarditis)**
- **Neoplasm**

Diagnosis

- **Cause can be determined in 88 to 100%**
- **Can be due to multiple causes in 1/4 of the cases**
- **Asthma, PND, GERD, and chronic bronchitis most common in adults**
- **Unless the CXR is abnormal, FOB has very limited diagnostic utility**

Causes of Chronic Cough

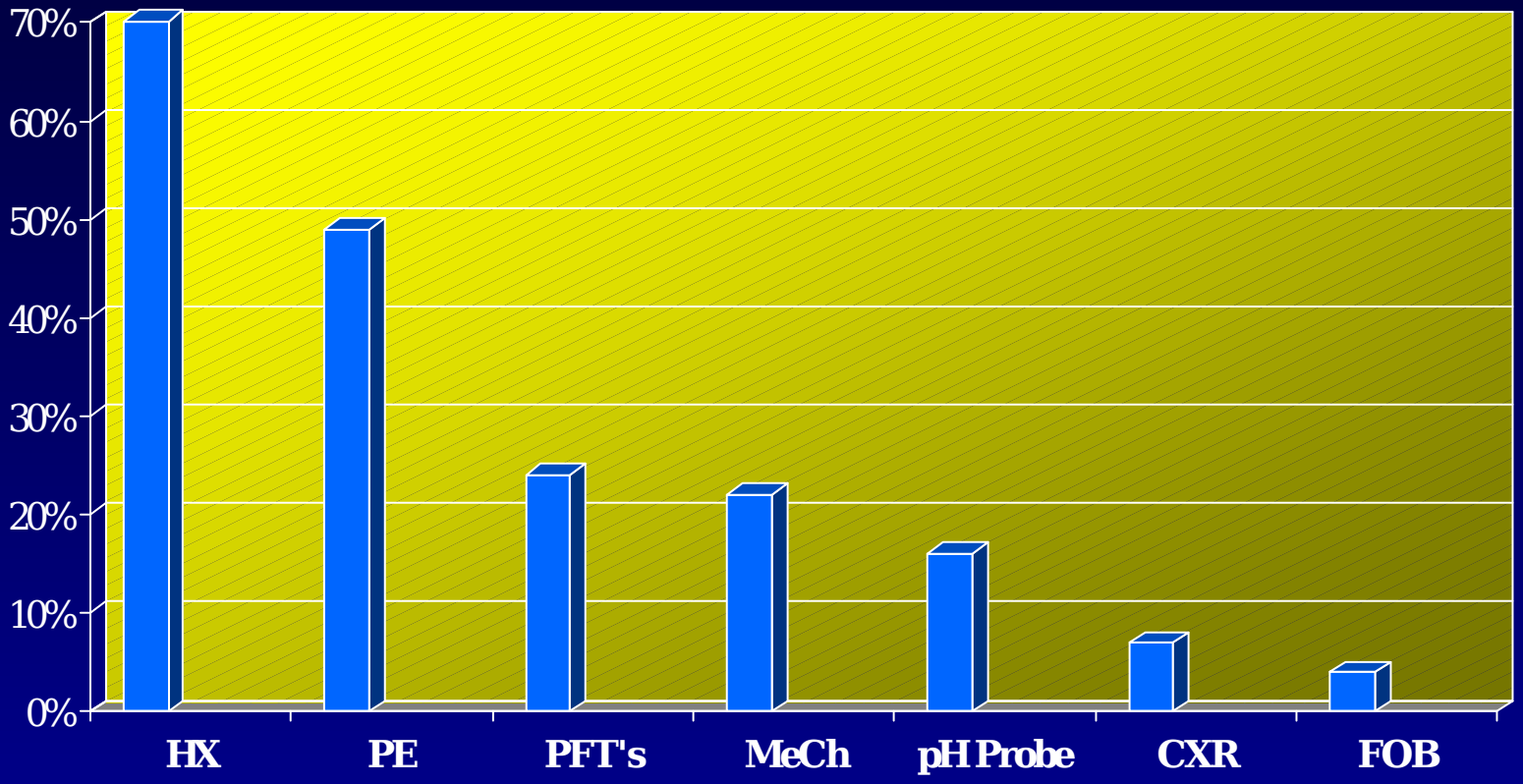


Evaluation

- **History and PE directed at the known most common causes**
- **Perform a CXR in all patients**
- **No further tests in patients still smoking or taking ACEI**
- **Consider sinus films, Methacholine challenge, esophageal pH probe, FOB**

Irwin et al.PCCU.

Diagnostic Tests



Algorithmic Approach

- **Prospective trial in 45 patients with chronic cough**
- **Antihistamine/decongestant therapy used “up front” in all patients**
- **Delayed CXR until after this empiric trial**
- **MeCh, pH probe used sequentially as needed**

Pratter et al. Ann Int Med 1993;119:977-983.

Algorithmic Approach

- **Cough resolved in 39% with this therapy alone**
- **Cause determined in 100% of the cases**
- **An average of 1.8 tests/pt done**

Pratter et al. Ann Int Med 1993;119:977-983.

Characteristics of Cough

- **Are character, timing, or complications helpful in determining the cause?**
- **Prospective evaluation of 88 consecutive patients**
- **Had anatomic/diagnostic w/u**
  - **CXR**
  - **Pre/Post PFT's----MeCh**
  - **Esoph pH**

Mello et al. Arch Int Med 1996; 156:997-1003.

Characteristics of Cough

- **Cause determined in 98% (defined as positive response to rx)**
- **Spectrum and frequency similar regardless of sputum production**
- **Multiple linear regression showed NO variable could be explained by specific dx**
- **Detailed questioning not clinically useful**

Mello et al. Arch Int Med 1996; 156:997-1003.

FOB in Unexplained Cough

- **Retrospective review of 25 patients with cough refractory to empiric therapy**
- **Seven (28%) had diagnostic findings (broncholithiasis, tracheal abnormalities, laryngeal polyps and dyskinesia)**
- **Age >50 and female sex independently predicted positive results**
- **FOB may have a role in carefully selected patients**

Sen et al. CHEST 1991;99:33-35.

Postnasal Drip Syndrome

- **Should be suspected**
  - **Dripping in back of throat**
  - **Frequent throat clearing**
  - **Cobblestoning on exam**
- **Dx requires favorable response to therapy**
- **Pathophysiology likely related to stimuli irritating the afferent limb of the cough reflex in the upper airway**

Postnasal Drip Syndrome

- **DDx includes sinusitis, perennial rhinitis, allergic rhinitis, vasomotor rhinitis, drug-induced, and environmental irritants**
- **Specific therapy should be aimed at the drip or what is causing the drip**
- **Antihistamines alone likely to be effective only in allergic rhinitis**

Asthma

- **Can be the sole presenting complaint (cough-variant asthma) in 28-60% of patients**
- **Stimulus for cough unknown and not related tightly to bronchoconstriction**
- **MeCh has 100% NPV**
- **Rx with inhaled B-agonists usually effective; some may need the addition of inhaled corticosteroids**

GERD

- **Can be the sole symptom in a large number of patients**
- **Probable esophageal-bronchial reflex; acid is likely not the sole mediator**
- **Treatment with H_2-antagonists alone can fail**
- **Strict dietary counseling and a promotility agent often needed**

Pitfalls in Management

- **MeCh, by itself, may not be diagnostic**
- **Inhaled medications may precipitate cough**
- **Assuming all H_1-antagonists are equal**
- **More than one condition may be present**
- **Overlooking “silent” GERD**

Question 1

- **Which of the following statements about the diagnostic workup of chronic cough is true?**
  A. The CXR is frequently abnormal
  B. FOB is useful when the CXR is normal
  C. The PPV of MeCh approaches 100%
  D. The principle strength of laboratory testing is to rule out suspected possibilities

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Question 2

- **A 56-year-old nonsmoker complains of fits of coughing, PND, and throat clearing for 8 months duration. She denies heartburn, regurgitation. She is taking HCTZ and captopril for HTN. PE and CXR are WNL. In evaluating her cough, which should be done first?**
  - **A. Sinus series**
  - **B. Ba Swallow**
  - **C. Discontinue captopril**
  - **D. MeCh**
  - **E. Empiric trial antihistamine**

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Question 3

- **Which of the following statements is true concerning cough due to GERD?**
  A. It may fail to improve with H_2-antagonist Rx
  B. It may fail to respond to intensive medical regimen within two weeks
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Question 4

- **Which of the following is important in establishing the diagnosis of cough-variant-asthma?**
  A. A favorable response to inhaled beta agonists
  B. A positive MeCh
  C. A history of paroxysms of coughing
  D. A wheeze on physical exam
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Hemoptysis

- **Definition**
- **Etiologies**
- **Evaluation**
- **Management**

Definition

- **Massive hemoptysis: expectorating between 100 and 1,000 ml of blood over a 24 hour period of time**
- **Non-Massive hemoptysis: bleeding which does not compromise or threaten a patient's cardiopulmonary status**

Etiologies

- Abcess
- AVM
- Bronchial mass
- Bronchiectasis
- Bronchitis
- Broncholith
- Cardiac disease
- Embolism
- Foreign body
- Alveolar hemorrhage
- Metastatic disease
- Pulm infarction
- Pneumonia
- TB
- Trauma

Etiology

- **Hemoptysis with a normal CXR**
  - **Bronchitis**
  - **Bronchiectasis**
  - **PE**
  - **Lung CA in the trachea or airways**
  - **PA rupture or dissection**

Evaluation

- **Ensure that the bleeding is indeed coming from the lower airways**
- **History should be directed at clues as to the etiology, as well as to characterize the amount of bleeding**
- **CBC, coag panel, CXR at a minimum**

Role of FOB

- **Identify the site of bleeding; make a pathologic diagnosis**
- **Ability to identify the site of bleeding is dependent on the rate of bleeding**
- **FOB done early (within 48 hrs) more likely to identify the site (34 vs 11%)**
- **Diagnostic yield higher when an abnormality present on CXR**

Role of FOB

- **When the CXR is normal or non-localizing:**
  - **Age greater than 50, male sex, and smoking history correlated with incidence of malignancy**
  - **Hemoptysis > 1 week also more likely in CA**
- **No firm guidelines on the role of FOB in detecting occult carcinoma in non-massive hemoptysis**

CT

- **Prospective study in 40 patients with unexplained hemoptyis compared with control**
- **Abnormalities detected in 20**
- **Bronchiectasis the most common finding**
- **In the 20 pts with normal CTs, they were all alive and well at f/u**

Millar et al. Resp Med 1992;86:39-44.

CT

- **Prospective study to compare CT with FOB in the Dx of CA in pts with hemoptysis**
- **CT scans identified all 27 tumors seen at bronchoscopy, plus an additional 7**
- **FOB better at identifying mucosal abns**
- **CT may have a role when FOB is negative and there is a strong suspicion of CA**

Set et al. Radiology 1993;189:677-680.

Management

- **Therapy can typically proceed along diagnostic channels**
  - **localization of bleeding site**
  - **cough suppression**
  - **consider empiric antibiotics**
  - **diagnostic evaluation**
- **Any patient with greater than 200cc of blood should be admitted to the hospital**

Massive Hemoptysis

- **Has been defined as the volume of blood that presents risk for large aspiration, airway obstruction, or hypotension**
- **“Exsanguinating” hemoptysis is enough bleeding to threaten life by blood loss itself**
- **Patient with >600cc of blood in <4 hrs carry a 71% mortality risk**

Massive Hemoptysis

- **The spectrum of etiologies is narrower and has not changed much through the years**
  - **TB**
  - **Bronchiectasis**
  - **CA**
  - **Abcess**
  - **Mycetoma**

Diagnosis of Massive Hemoptysis

- **Must localize the site of bleeding**
  - **Pt self assessment least useful (3%)**
  - **Clinical exam accurate in 40%**
  - **CXR correct in 60%**
  - **FOB most accurate (86% in those performed)**
- **Though early FOB more accurately ID's the site, it has not been shown definitively to alter management or outcome**

General Management

- **Localize bleeding**
- **Bleeding lung down**
- **Volume/clotting management**
- **Cough suppression**
- **Stool softeners**

General Management

- **Airway Management**
  - **Indications are the same as for all forms of resp failure; must also prevent asphyxiation**
  - **Orotracheal tube preferred**
  - **Selective intubation of mainstem bronchi**
  - **DLT**

Specific Management

- **Topical treatments**
  - **Balloon tamponade**
  - **Topical coagulants**
  - **Cold saline lavage**
- **Pharmacologic maneuvers**
  - **Vasopressin**
- **Angiographic occlusion of vessels**
- **Surgical treatment**